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Information Section
Bureau of Standards, Washington

RADIO PUBLICATIONS OF THE BUREAU OF STANDARDS.

The radio publications of the Bureau of Standards printed at the Government Printing Office can be secured by purchase from the Superintendent of Documents, Government Printing Office, Washington, D.C., at the prices stated in the following list. This list also includes references to articles emanating from this Bureau which have been published in outside periodicals. The Bureau can not supply copies of papers published in outside periodicals; inquiries for copies of such papers should be addressed directly to the periodical concerned. A list of Letter Circulars on radio subjects is also given herein; see section entitled "Letter Circulars" at end.

Persons who wish to keep in touch with the radio publications of the Bureau as they are issued should subscribe to the "Radio Service Bulletin," published monthly by the Bureau of Navigation, Department of Commerce. Besides notices regarding new Government radio publications, the "Radio Service Bulletin" contains brief news items concerning Government radio work, additions and changes to the lists of radio calls and radio regulations, and other useful information. The Radio Service Bulletin also publishes each month a list of references to the more important radio articles appearing in the technical radio periodicals. These references are classified, and furnish a means of keeping in touch with the material appearing on a particular subject. Subscriptions should be sent to the Superintendent of Documents. The price is 25 cents per year for subscribers in the United States and its possessions, Canada, Cuba and Mexico. To other countries the subscription price is 40 cents per year. The Bureau does not send individual notices of its publications as they appear.

The publications of the Bureau of Standards printed by the Government Printing Office are divided into five series: Scientific Papers, Technologic Papers, Circulars, Miscellaneous Publications, and Handbooks.

The Scientific Papers are published separately, and also in cloth-bound volumes. Scientific Papers Nos. 1 to 329 are included in volumes 1 to 14, which were called "Bulletin of the Bureau of Standards." Volumes 15, 16 and 17, and subsequent volumes are called "Scientific Papers of the Bureau of Standards." Volume 15 includes Nos.330-368, volume 16 includes Nos.369-404, and volume 17 includes Nos. 405-438. The bound volumes can be procured only by purchase from the Superintendent of Documents. Volumes 1 to 14 cost $1.50 per volume, and later volumes cost

$2.00 per volume. Subscriptions in advance for the separate unbound Scientific Papers constituting a volume, to be sent promptly as issued, may be placed with the Superintendent of Documents at the rate of $1.25 per volume. Advance subscriptions for unbound copies of the Technologic Papers may also be placed at the same rate. The earlier volumes (from vol. 1 to vol.14) were published in four paper-bound "Numbers" each, as well as in a complete cloth-bound volume, and "vol.10, No.4" means that the paper in question will be found in the paper-bound part of vol. 10 marked "No.4." These separate paper-bound numbers can be purchased separately.

The prices stated for publications printed at the Government Printing Office, include postage in the United States and its possessions, Canada, Cuba, and Mexico. On shipments to be sent to other countries the actual cost of the postage is charged, which is at the rate of eight cents per pound. In general, an allowance should be made for foreign postage equal to about 25% of the amount of the order.

The following abbreviations are used to indicate the several classes of publications:

S = Scientific Paper
T = Technologic Paper
C = Circular
H = Handbook
M = Miscellaneous publications.
° = Not printed at the Government Printing Office.

For example, S189 means Scientific Paper No. 189.

Papers designated by the mark ° are not printed by the Government Printing Office, but are publications in an outside periodical by a member of the staff of the Bureau. They should be consulted at libraries which maintain files of the particular periodicals referred to.

General

The Principles Underlying Radio Communication. Signal Corps Radio Communication Pamphlet No. 40. Second edition, issued March 23, 1922. Textbook of 619 pages, with 300 illustrations, covering radio principles and practice. Price $1.00. Foreign postage 15 cents extra. (See note above regarding foreign postage).

Sources of Elementary radio information. C122. June, 1922. 5¢ (Information regarding radio publications, including those of the Government, and radio periodicals, radio laws, and call letters. Answers various questions of the beginner).

A decimal classification of radio subjects. An extension of the Dewey system. C138. 33 pages. March, 1923. 10¢.

°Bureau of Standards Radio Work. J.H.Dellinger. The Federal Employee, 4, p.531, September; p.590, Oct., 1919. Reprinted in Radio Amateur News, 1, p.400, Feb., 1920, as "The Radio Compass" (6 pages).

°Radio communication: Elementary explanation of the principles of radio telegraphy and telephony. J.H.Dellinger. Scientific American Monthly, 124, p.157; Feb., 1921.

°The radio work of the Department of Commerce. J.H.Dellinger, QST, 4, pp.18-21; June 1921.

°The radio research field (Abstract). J.H.Dellinger and L.E. Whittemore, Physical Review, 18, pp.152-153; August, 1921.

°The Bureau of Standards lends a hand. J.H.Dellinger. Radio Broadcast, 1, pp.40-48, Nov., 1922.

°The work of the International Union of Scientific Radio Telegraphy. J.H.Dellinger, Proceedings of the Institute of Radio Engineers, 11, pp.75-83, April, 1923.

°Recent developments in radio in the United States. J.H.Dellinger. Boletim de la Uniao Pan-Americana, (Portugese), 25, p.31; July, 1923. Boletin de la Union.

Radio Wave Phenomena.

Some quantitative experiments in long-distance radiotelegraphy. L.W.Austin. S159. 49 pages. 1911. (B.S.Bulletin, 7, No. 3, p.315). 10¢.

Quantitative experiments in radiotelegraphic transmission. L.W.Austin. S226. 18 pages. 1914. (B.S.Bulletin, 11, No. 1, p.69) 5¢.

Principles of radio transmission and reception with antenna and coil aerials. J.H.Dellinger. S354. 61 pages. 1919. 10¢. (B.S.Scientific Papers, 15, 435-495).

Variations in direction of propagation of long electromagnetic waves. A.H.Taylor. S353. 14 pages. 1919. 5¢ (B.S.Scientific Papers 15, 419-433).

°Station performance during the Bureau of Standards - A.R.R.L. QSS tests of June and July, 1920. S.Kruse. QST, 4, 4 pages; Sept., 1920.

°The Bureau of Standards-A.R.R.L. tests of short-wave radio signal fading. S.Kruse, QST, 4, 16 pages; Nov. and Dec., 1920.

°Radio signal fading phenomena. J.H.Dellinger and L.E.Whittemore. Jnl. Wash. Academy of Sciences, 2, pp.243-259; June 4, 1921.

°Objects that distort radio waves. L.E.Whittemore. Radio Broadcast, 1, pp.101-106; June, 1922.

°Final report on the fading tests. J.H.Dellinger, L.E.Whittemore, S.Kruse. QST, 7, p.29-34 of August, p.23-26 of Sept., 1923.

Antennas.

Antenna resistance. L.W.Austin. S189. 8 pages. 1912. (B.S. Bulletin, 9, No.1, p.65). 5¢.

Note on resistance of radiotelegraphic antennas. L.W.Austin. S257. 4 pages. 1915. (B.S.Bulletin, 12, No.3, p.465). 5¢.

Effect of imperfect dielectrics in the field of a radiotelegraphic antenna. J.M.Miller. S269. 8 pages. 1916. (B.S.Bulletin, 13, No. 1, p.129). 5¢.

Electrical oscillations in antennas and inductance coils. J.M. Miller. S326. 20 pages. 1918. (B.S.Bulletin, 14, No. 4, p.677). 5¢.

Airplane antenna constants. J.M.Cork. S341. 14 pages. 1919. 5¢.

The field radiated from two horizontal coils. G.Breit. S431. 1922. 5¢. (B.S.Scientific Paper 17, 589-606).

°Development of loop aerial for submarine radio communication, (brief note). J.A.Willoughby and P.D.Lowell. Physical Review, 14, p.193; Aug., 1919.

°Electric wave transmission formulas for antenna and coil aerials (brief note). J.H.Dellinger. Physical Review, 14, p.180; August, 1919.

°Experiments with the two plate condenser antenna. J.O.Warner. Radio News, 4, p.1618, March, 1923.

Applications of Radio

The radio direction finder and its application to navigation. F.A.Kolster and F.W.Dunmore. S428. 38 pages. 1922. 15¢.

Introduction to line radio communication. Radio communication pamphlet No. 41. (W.D.D.1114; Jan., 1923).

Directive radio transmission on a wave length of 10 meters. F.W.Dunmore and F.H.Engel. S469. 16 pages. 1923. 10¢. Reprinted in Radio News, 5, pp.128-130, August, 1923, as "Short wave directive radio transmission."

°Blindfold navigation, by radio: Department of Commerce radio fog signaling and radio compass system. F.A.Kolster, Shipping 13, pp.13-18; Feb. 25, 1921.

°Radio communication with postal airplanes. J.L.Bernard and L.E. Whittemore. Aerial Age Weekly, 13, p.105; April 11, 1921.

°Some physical problems of aircraft radio. (Brief note). L.E. Whittemore. Physical Review, 18, p.149; August, 1921.

°A simple type of radio direction finder for use on shipboard. F.W.Dunmore. Radio Service Bulletin, No.54, pp.10-12; Oct.1, 1921. Reprinted in Radio News, 3, p.588, Jan., 1922, as "The radio direction finder: its application, construction and operation."

°The development of radio telephone communication between lifeboats and shore stations. F.W.Dunmore. Radio News, 8, p.694; February, 1922.

°Continuous-wave radio transmission on a wave length of 100 meters using a special type of antenna. F.W.Dunmore. Proceedings Institute of Radio Engineers, 11, pp. 243-255, June, 1923. Reprinted in part in QST, 6, pp. 75-76 of July, 1923, as "Bureau of Standards explores short wave regions."

Electron Tubes

Dependence of the input impedance of a three-electrode vacuum tube upon the load in the plate circuit. J.M.Miller. S351. 18 pages. 1919. 5¢. (B.S.Scientific Papers 15, 367-385).

Determination of the output characteristics of electron tube generators. L.M.Hull, S355. 20 pages. 1919. 5¢ (B.S.Scientific Papers 15, 497-517).

An electron tube transmitter of completely modulated waves. L.M.Hull. S381. 13 pages. June 18, 1920. (B.S.Scientific Papers 16, 259-271). 5¢

Operation of the modulator tube in radio telephone sets. E.S. Purington. S423. 29 pages. 1921. (B.S.Scientific Papers 17, 377-406). 10¢.

Radio-frequency amplifiers. P.D.Lowell. S449. 7 pages. 1922. 5¢ (B.S.Scientific Papers 18, 335-343).

An electron tube amplifier using 60-cycle alternating current to supply power for the filaments and plates. P.D.Lowell. S450. 7 pages. 1922. 5¢ (B.S.Scientific Paper 18, 345-352).

°A dynamic method of determining the characteristics of three-electrode vacuum tubes. J.M.Miller. Proceedings of the Institute of Radio Engineers, 6, p.141, 8 pages. 1918.

°The dependence of the amplification constant and internal plate circuit resistance of a three-electrode vacuum tube upon the structural dimensions. J.M.Miller. Proceedings of the Institute of Radio Engineers, 8, p.64. 10 pages. Feb., 1920.

°Operation of an electron tube as an amplifying rectifier (Brief note). L.M.Hull. Physical Review, 15, p.557, June, 1920.

°Long-distance radio telephony now practicable. J.H.Dellinger. Electrical World, 77, p.142; January 15, 1921.

°Input resistance of thermionic valve. J.M.Miller. Journal American Institute of Electrical Engineers, 40, p.200; March, 1921.

°Measurements on audio-frequency amplifiers. L.M.Hull. Wireless Age, 8, pp.12-16; June, 1921.

°Notation for electron tube circuits. J.H.Dellinger. Radio Review 2, pp.454-459; December, 1921.

°An electron tube amplifier for amplifying direct current. H.A.Snow. Journal Optical Society of America and Review of Scientific Instruments, 6, pp.186-192; March, 1922.

°A high-voltage storage battery for use with electron tube generators of radio-frequency currents. E.L.Hall and J.L.Preston. Journal Optical Society of America and Review of Scientific Instruments, 6, p.177-182; March, 1922.

°A method for testing and rating electron tube generators. L.M.Hull. Proceedings Institute Radio Engineers, 10, p.373; Oct., 1922.

°A 100 to 3000 meter oscillator. H.J.Walls, QST, 6, p.48 of May, 1923.

Receiving Apparatus

The construction and operation of a simple homemade radio receiving outfit. Circular 120. May, 1922. 5¢

Construction and operation of a two-circuit radio receiving equipment with crystal detector. Circular 121. May, 1922. 5¢

Description and operation of an electron-tube detector unit for simple radio receiving outfits. C133. Nov., 1922. 10¢

Auxiliary condensers and loading coil used with simple homemade radio receiving outfits. C137. Feb., 1923. 10¢

Description and operation of an audio-frequency amplifier unit for simple radio receiving outfits. C141. March, 1923. 10¢

°Radio telegraphy: A chronographic recorder of radio time signals. E.A.Eckhardt and J.C.Karcher. Journal Washington Academy of Sciences, 11, pp.303-310; July 19, 1922.

°A relay recorder for remote control by radio. F.W.Dunmore. Journal of American Institute of Electrical Engineers, 41, pp.310-313; April, 1922. Reprinted in Wireless World and Radio Review, 10, pp.586-590; August 5, 1922.

°A device for recording electric contact using an electron tube generator and a radio-frequency spark. C.T.Zahn. Journal Washington Academy of Sciences, 12, pp.412-416; Nov.4, 1922.

Radio Measurements

The measurement of electric oscillations in the receiving antenna. L.W.Austin. S157. 5 pages. 1911. (B.S.Bulletin, 7, No.2, p.295). 5¢

Some experiments with coupled high-frequency circuits. L.W. Austin. S158. 14 pages. 1911. (B.S.Bulletin, 7, No.2, p.301). 5¢

High-frequency ammeters. J.H.Dellinger. S206, 69 pages, 1913. (B.S.Bulletin, 10, No. 1, p.91). 10¢

Direct-reading instrument for measuring logarithmic decrement and wave length of electromagnetic waves. F.A.Kolster. S235. 35 pages. 1914. (B.S.Bulletin, 11, No.3, p.421). 10¢

Electric units and standards. C60. 68 pages. Sept. 25, 1916. 15¢

International system of electric and magnetic units. J.H. Dellinger. S292. 33 pages. 1916. (B.S.Bulletin, 13, No.4, p.599). 10¢

Fees for electric, magnetic and photometric testing. C6. 30 pages. 7th edition. Dec. 30, 1916. 5¢

Radio instruments and measurements. C74. 341 pages. March 23, 1918. 60¢

°The measurement of radio-frequency resistance, phase difference and decrement. J.H.Dellinger. Proceedings of Institute of Radio Engineers. (34 pages, vol. 7, p.27; Feb., 1919).

°Permanent-contact crystal detectors. (Brief note). L.S.McDowell. Physical Review, 13, p.288; April, 1919.

°Improvements in precision measurements at radio frequencies. (Brief note). J.H.Dellinger. Physical Review, 14, p.181; August, 1919.

°Capacitive coupling in radio circuits. (Brief note). L.F. Whittemore. Physical Review, 15, p.559; June, 1920.

°The cathode-ray oscillograph and its application in radio work. L.M.Hull. Proceedings Institute Radio Engineers, 9, p.130; April, 1921.

°The highOfrequency impedance of radio telephone receivers. (Brief note). C.T.Zahn. Physical Review, 18, p.130; Aug. 1921.

°Present status of the electric and magnetic units. J.H.Dellinger. Physical Review, 18, p.121, August, 1921.

°Portable wavemeters for short-wave radio. R.T.Cox and S.Kruse. QST, 5, pp.14-19; Sept., 1921.

°Standard radio wavemeter--Bureau of Standards Type R-70B. R.T.Cox. Journal Optical Society of America and Review of Scientific Instruments, 6, pp.162-168, March, 1922. Reprinted in Aviation & Wireless News (Canada), 4, pp.16-18; Feb., 1922. Reprinted as "Details of a new standard B.S.Wavemeter," R.T. Cox. Radio Topics, 1, p.6; Jan., 1922.

°A method of measuring coil capacities and standardizing wavemeters. G.Breit. Radio Review, 3, pp.71-79; February, 1922.

°Some measurements of telephone sensitivity. H.H.Smith. Wireless Age, 9, pp.65-66; Aug., 1922.

°Reducing the guesswork in tuning. J.H.Dellinger. Radio Broadcast, 3, pp.241-245, July, 1923.

Capacity, Inductance, Resistance.

Measurement of inductance by Anderson's method, using alternating currents and a vibration galvanometer, Rosa and Grover. S14. 1905. (B.S.Bulletin, 1, No.3, p.291).15¢

The influence of frequency on the resistance and inductance of solenoidal coils. L.Cohen. S76. 19 pages. 1907. (B.S.Bulletin 4, No. 1, p.161). 10¢

The simultaneous measurement of the capacity and power factor of condensers. F.W.Grover, S64. 81 pages. 1907. (B.S.Bulletin, 3, No.3, p.371). 15¢

Mica condensers as standards of capacity. H.L.Curtis. S137. 38 pages. 1910. (B.S.Bulletin, 6, No.4, p.431). 10¢

The capacity and phase difference of paraffined paper condensers as functions of temperature and frequency. F.W.Grover. S166. 82 pages. 1911. (B.S.Bulletin 7, No.4, p.495).

Formulas and tables for the calculation of mutual and self-inductance. Rosa and Grover. S169. 237 pages. 1911. (B.S. Bulletin 8, No.1, p.1). 20¢

The testing and properties of electric condensers. C36. 26 pages. June 30, 1912. 5¢

The energy losses in some condensers used in high-frequency circuits. L.W.Austin. S190. 8 pages. March 1, 1912. (B.S.Bulletin 9, No. 1, p.73). 5¢

A variable self and mutual inductor. H.B.Brooks and F.C.Weaver. S290. 1916. 10¢

Additions to the formulas for the calculation of mutual and self inductance, (Supplementing S169). F.W.Grover. S320. 34 pages. 1918. (B.S.Bulletin, 14, No.4, p.537). 10¢

Some effects of the distributed capacity between inductance coils and the ground. G.Breit. S427. 6 pages. Dec.21, 1921. 5¢

The high-frequency resistance of inductance coils. G.Breit. S430. 1922. (B.S.Scientific Papers 17, pp.569-587). 5¢

Tables for the calculation of the inductance of circular coils of rectangular cross section. F.W.Grover. S455. 1922. (B.S.Scientific Papers, 18, p.451).

Formulas and tables for the calculation of the inductance of coils of polygonal form. F.W.Grover. S468. May, 1923. 10¢

°The effects of distributed capacity of coils used in radio telegraphic circuits. F.A.Kolster. Proceedings Institute of Radio Engineers, 1, p.19; 1913.

°Inductance, capacity and resistance of coils at radio frequencies. (Brief note). L.E.Whittemore and G.Breit, Physical Review, 14, p170); August, 1919.

°The inductance of coils wound on polygonal frames. (Brief note). F.W.Grover. Physical Review, 16, p.532; June, 1920.

°The distributed capacity of inductance coils. G.Breit. Physical Review, 17, pp.649-677; June, 1921.

°The effective capacity of multilayer coils with square and circular section. G.Breit. Philosophical Magazine, 43, pp.963-992; May, 1922.

°The effective capacity of pancake coils. G.Breit. Philosophical Magazine, 44, pp.739-740; Oct., 1922.

Properties of Materials

Copper wire tables. C31. 76 pages. 3d edition. Oct.1, 1914. 20¢

Insulating properties of solid dielectrics. H.L.Curtis. S234. 1914. (B.S.Bulletin, 11, No.3, p.359). 64 pages. 15¢

Electric wire and cable terminology. C37. 13 pages. 2d edition. Jan. 1, 1915. 5¢

Properties of electrical insulating materials of the laminated-phenol-methylene type. J.H.Dellinger and J.L.Preston. T216 July, 1922. 30¢

Methods of measurement of properties of electrical insulating materials. J.H.Dellinger and J.L.Preston. S471. May, 1923. 15¢.

Letter Circulars.

The following documents are not available in printed form. They have been prepared in mimeographed form only, like this pamphlet, and can be consulted at the Bureau of Standards. The Bureau has only a small number of copies of these, but where a person can show special need for the information, a copy may be furnished without charge.

Letter Circular No. 40, Radio publications of the Bureau of Standards.
Letter Circular No. 50, Bibliography of books and periodicals on tests, properties and uses of electrical insulating materials.
Letter Circular No. 51, List of the more important United States patents covering the material and methods of manufacture of insulating materials.
Letter Circular No. 56, Methods of radio direction finding as an aid to navigation: The relative advantages of locating the direction finder on shore and on shipboard.
Letter Circular No. 73, Fees for testing radio apparatus.
Letter Circular No. 75, The secondary standardization of radio wavemeters.
Letter Circular No. 76, The standardization of inductors at radio frequencies.
Letter Circular No. 77, The comparison of condensers at radio frequencies.
Letter Circular No. 78, Design of a portable short-wave radio wavemeter.
Letter Circular No. 86, Methods of measuring voltage amplification of amplifiers.
Letter Circular No. 87, Methods of measuring properties of electron tubes.
Letter Circular No. 90, Tests of Radio Receiving Sets. I.

Letter Circular No. 92, Radio signals of standard frequency and their utilization.
Letter Circular No. 93, Tests of radio receiving sets. II.
Letter Circular No. 98, Some measurements of voltage amplification of audio-frequency amplifiers.
Letter Circular No. 102, Tests of receiving sets. III.
Letter Circular No. 103, Description of a series of single-layer inductance coils suitable for radio-frequency standards.

Department of Commerce,
Washington, D.C.